CLAIMES:

1. An MR imaging method of encoding a K space so as to fill the same with orthogonal two directions as phase axes, comprising the steps of:

determining an encode order in consideration of distances from the center of the K space to individual encode points and existing quadrants; and

encoding the K space in the determined encode order.

2. An MR imaging method of encoding a K space so as to fill the same with orthogonal two directions as phase axes, comprising the steps of:

defining N1 (>4) encode points as a first segment in order of decreasing distances from the center of the K space, next defining N2 encode points as a second segment in order of decreasing distances from the center of the YZ-K space, and similarly performing segmentization subsequently;

assigning serial numbers to the encode points of a first quadrant in the first segment in order of decreasing distances from the center of the K space, next assigning serial numbers to the encode points of a second quadrant therein in order of decreasing distances from the center of the K space, next assigning serial numbers to the encode points of a third quadrant therein in order of decreasing distances from the center of the K space, and next assigning serial numbers to the encode points of a fourth quadrant therein in order of decreasing distances from the center of the K space; and next assigning serial numbers to the encode points of a first quadrant in the second segment in order of decreasing distances from the center of the K space, next assigning serial numbers to the encode points of a second quadrant therein in order of decreasing distances from the center of the

K space, next assigning serial numbers to the encode points of a third quadrant therein in order of decreasing distances from the center of the K space, and next assigning serial numbers to the encode points of a fourth quadrant therein in order of decreasing distances from the center of the K space, and similarly assigning serial numbers subsequently; and

encoding the K space in order of the determined serial numbers to thereby collect data.

3. The MR imaging method of claim 2, wherein the order of the second, third, fourth and first quadrants, the order of the third, fourth, first and second quadrants, or the order of the fourth, first, second and third quadrants is used in place of the order of the first, second, third and fourth quadrants.

4. The MR imaging method of claim 2, wherein the order of the fourth, third, second and first quadrants, the order of the third, second, first and fourth quadrants, the order of the second, first, fourth and third quadrants, or the order of the first, fourth, third and second quadrants is used in place of the order of the first, second, third and fourth quadrants.

5. The MR imaging method of any of claims 2 to 4, wherein $N1 \geq 12$.

6. A 3D imaging method for 3D-scanning an imaging region with an X direction as a read axis and Y and Z directions as phase axes, comprising the steps of:

determining an encode order in consideration of distances from the center of a YZ-K space to individual encode points and existing quadrants;

and

encoding the YZ-K space in the determined encode order to thereby perform a 3D scan.

7. A 3D imaging method for 3D-scanning an imaging region with an X direction as a read axis and Y and Z directions as phase axes, comprising the steps of:

defining N1 (>4) encode points as a first segment in order of decreasing distances from the center of a YZ-K space, next defining N2 encode points as a second segment in order of decreasing distances from the center of the YZ-K space and similarly performing segmentization subsequently;

assigning serial numbers to the encode points of a first quadrant in the first segment in order of decreasing distances from the center of the YZ-K space, next assigning serial numbers to the encode points of a second quadrant therein in order of decreasing distances from the center of the YZ-K space, next assigning serial numbers to the encode points of a third quadrant therein in order of decreasing distances from the center of the YZ-K space, and next assigning serial numbers to the encode points of a fourth quadrant therein in order of decreasing distances from the center of the YZ-K space; and next assigning serial numbers to the encode points of a first quadrant in the second segment in order of decreasing distances from the center of the YZ-K space, next assigning serial numbers to the encode points of a second quadrant therein in order of decreasing distances from the center YZ-K space, next assigning serial numbers to the encode points of a third quadrant therein in order of decreasing distances from the center of the YZ-K space, and next assigning serial numbers to the encode points of a fourth quadrant therein in order of decreasing distances from

the center of the YZ-K space, and similarly assigning serial numbers subsequently; and

encoding the YZ-K space in order of the assigned serial numbers to thereby perform a 3D scan.

8. The 3D imaging method of claim 7, wherein the order of the second, third, fourth and first quadrants, the order of the third, fourth, first and second quadrants, or the order of the fourth, first, second and third quadrants is used in place of the order of the first, second, third and fourth quadrants.

9. The 3D imaging method of claim 7, wherein the order of the fourth, third, second and first quadrants, the order of the third, second, first and fourth quadrants, the order of the second, first, fourth and third quadrants, or the order of the first, fourth, third and second quadrants is used in place of the order of the first, second, third and fourth quadrants.

10. The 3D imaging method of any of claims 7 to 9, wherein $N1 \geq 12$.

11. An MRI system for encoding a K space so as to fill the same with orthogonal two directions as phase axes to thereby collect data, comprising:

an encode order setting device for setting an encode order in consideration of distances from the center of the K space to individual encode points and existing quadrants, and

wherein the K space is encoded in the set encode order to thereby collect data.

12. The MRI system of claim 11, wherein said encode order setting device includes,

a segmentizing device for defining N1 (>4) encode points as a first segment in order of decreasing distances from the center of the K space, next defining N2 encode points as a second segment in order of decreasing distances from the center of the K space and similarly performing segmentization subsequently; and

a serial number assigning device for assigning serial numbers to the encode points of a first quadrant in the first segment in order of decreasing distances from the center of the K space, next assigning serial numbers to the encode points of a second quadrant therein in order of decreasing distances from the center of the K space, next assigning serial numbers to the encode points of a third quadrant therein in order of decreasing distances from the center of the K space, and next assigning serial numbers to the encode points of a fourth quadrant therein in order of decreasing distances from the center of the K space; and next assigning serial numbers to the encode points of a first quadrant in the second segment in order of decreasing distances from the center of the K space, next assigning serial numbers to the encode points of a second quadrant therein in order of decreasing distances from the center of the K space, next assigning serial numbers to the encode points of a third quadrant therein in order of decreasing distances from the center of the K space, and next assigning serial numbers to the encode points of a fourth quadrant therein in order of decreasing distances from the center of the K space, and similarly assigning serial numbers subsequently.

13. An MRI system for 3D-scanning an imaging region with an X direction

as a read axis and Y and Z directions as phase axes, comprising:

an encode order setting device for determining an encode order in consideration of distances from the center of a YZ-K space to individual encode points and existing quadrants, and

wherein the YZ-K space is encoded in the set encode order to thereby perform a 3D scan.

14. The MRI system of claim 13, wherein said encode order setting device includes,

a segmentizing device for defining N1 (>4) encode points as a first segment in order of decreasing distances from the center of the YZ-K space, next defining N2 encode points as a second segment in order of decreasing distances from the center of the YZ-K space and similarly performing segmentization subsequently; and

a serial number assigning device for assigning serial numbers to the encode points of a first quadrant in the first segment in order of decreasing distances from the center of the YZ-K space, next assigning serial numbers to the encode points of a second quadrant therein in order of decreasing distances from the center of the YZ-K space, next assigning serial numbers to the encode points of a third quadrant therein in order of decreasing distances from the center of the YZ-K space, and next assigning serial numbers to the encode points of a fourth quadrant therein in order of decreasing distances from the center of the YZ-K space; and next assigning serial numbers to the encode points of a first quadrant in the second segment in order of decreasing distances from the center of the YZ-K space, next assigning serial numbers to the encode points of a second quadrant therein in order of decreasing distances from the center of the YZ-K space, next assigning

serial numbers to the encode points of a third quadrant therein in order of decreasing distances from the center of the YZ-K space, and next assigning serial numbers to the encode points of a fourth quadrant therein in order of decreasing distances from the center of the YZ-K space, and similarly assigning serial numbers subsequently.

15. The MRI system of claim 12 or 14, wherein said serial number assigning device sets the order of the second, third and fourth and first quadrants, the order of the third, fourth, first and second quadrants, or the order of the fourth, first, second and third quadrants in place of the order of the first, second, third and fourth quadrants.

16. The MRI system of claim 12 or 14, wherein said serial number assigning device sets the order of the fourth, third and second and first quadrants, the order of the third, second, first and fourth quadrants, the order of the second, first, fourth and third quadrants or the order of the first, fourth, third and second quadrants in place of the order of the first, second, third and fourth quadrants.

17. The MRI system of claim 12 or any of claims 14 to 16, wherein N1 $\geq$ 12.